WHAT IS CLAIMED IS:

1. An isolated and purified DNA molecule which encodes human histamine H3 receptor protein, wherein said protein functions as a human histamine H3 receptor, or a functional derivative thereof.

2. The isolated and purified DNA molecule of claim 1, having a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:5); (SEQ.ID.NO.:6); and functional derivatives thereof.

3. The isolated and purified DNA molecule of claim 1, wherein said DNA molecule is genomic DNA.

4. An expression vector for expression of an human histamine H3 receptor protein in a recombinant host, wherein said vector contains a recombinant gene encoding human histamine H3 receptor protein, said protein functions as a human histamine H3 receptor, and functional derivatives thereof.

5. The expression vector of claim 4, wherein the expression vector contains a cloned gene encoding human histamine H3 receptor protein wherein said protein functions as a human histamine H3 receptor, having a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:5); (SEQ.ID.NO.:6); and functional derivatives thereof.

6. The expression vector of claim 4, wherein the expression vector contains genomic DNA encoding human histamine H3 receptor protein wherein said protein functions as a human histamine H3 receptor.

7. A recombinant host cell containing a recombinantly cloned gene encoding human histamine H3 receptor protein wherein said protein functions as a histamine H3 receptor, or functional derivative thereof.

8. The recombinant host cell of claim 7, wherein said gene has a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:5); (SEQ.ID.NO.:6); and functional derivatives thereof.

9. The recombinant host cell of claim 7, wherein said cloned gene encoding human histamine H3 receptor is genomic DNA.

10. An isolated and purified protein wherein said protein is expressed from a recombinant DNA molecule encoding a human histamine H3 receptor.

11. The protein according to claim 10, having an amino acid sequence set forth in (SEQ.ID.NO.:7) and functional derivatives thereof.

12. A monospecific antibody immunologically reactive with human histamine H3 receptor protein wherein said protein functions as a human histamine H3 receptor.

13. The antibody of Claim 12, wherein the antibody blocks activity of the human histamine H3 receptor.

14. A process for expression of human histamine H3 receptor protein wherein said protein functions as a human histamine H3 receptor in a recombinant host cell, comprising:

(a) transferring the expression vector of Claim 4 into suitable host cells; and

(b) culturing the host cells of step (a) under conditions which allow expression of the human histamine H3 receptor protein from the expression vector.

15. A method of identifying compounds that modulate human histamine H3 receptor protein activity, comprising:

(a) combining a modulator of human histamine H3 receptor protein activity with human histamine H3 receptor protein wherein said protein functions as a human histamine H3 receptor; and

(b) measuring an effect of the modulator on the protein.

16. The method of claim 15, wherein the effect of the modulator on the protein is modulation of binding of histamine H3 ligands.

17. The method of claim 15, wherein the effect of the modulator on the protein is modulation of an intracellular second messenger formation that is mediated by histamine H3 receptors.

18. The method of claim 17, wherein the intracellular second messenger is cAMP or calcium or a reporter gene product.

19. A compound active in the method of Claim 15, wherein said compound is a modulator of a human histamine H3 receptor.

20. A compound active in the method of Claim 15, wherein said compound is an agonist or antagonist of human histamine H3 receptor.

21. A compound active in the method of Claim 15, wherein said compound is a modulator of expression of a human histamine H3 receptor.

22. A pharmaceutical composition comprising a compound active in the method of Claim 15, wherein said compound is a modulator human histamine H3 receptor activity.

23. A method of treating a patient in need of such treatment for a condition which is mediated by a human histamine H3 receptor, comprising administration of a human histamine H3 receptor modulating compound active in the method of Claim 15.